Palmtop Computers - a Physician's Portable Information Manager

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ABSTRACT

Medical Informatics has developed to better allow health care providers access to information needed to provide quality health care. Palmtop computers can help reach that goal by providing information access and management tools to the busy physician.

Advances in electronics have allowed miniaturization of computers to pocket-size. This allows physicians to have access to information stored in them from any location. We have developed software to run on a palmtop computer that organizes and integrates information needed by a busy clinician. It allows the physician to have access to information at the time and place of care. The software package integrates information sources to allow non-linear, task-oriented access. Our software also handles reminders for follow-up and to-do lists of physician tasks, freeing the physician to concentrate on the current task.

Our system demonstrates the enormous potential for palmtops to manage the rapidly growing base of information physicians need. Palmtop technologies on the horizon, such as wireless communications and pen interfaces, will make these indispensable clinical tools in the future.

INTRODUCTION

Current medical information systems do a poor job of organizing information retrieval for physician use. Most current systems are more suited for administrative tasks. Physicians use information in non-linear, clinical task oriented manners, and systems they use must be designed for this type of information retrieval. Systems that physicians will use must be available to them when and where they need the information. Inconvenient systems that interrupt the flow of tasks will not be easily accepted.

DEVELOPMENT

A Hewlett-Packard 95LX palmtop computer was chosen for size, cost, memory, and DOS-compatibility. Custom software was designed using the Clipper development package. Desirable information comes from various reference sources, and is transformed into the DBASE-3 standard format. The database computer files are then loaded on credit card-sized memory cards, which cost about $200, and are usable with the palmtop computer system. The custom-designed palmtop software is menu-driven for simple use; little training is required. Extensive indexing is done to access the data quickly, so that response times are rapid.

SYSTEM DESCRIPTION

The palmtop computer and our specially designed software integrate the following components: (1) In-patient and out-patient medical record summaries that can be entered by the physician or downloaded from other systems (2) Medical information from our hospital formulary, that was already present in their own software package. (3) Reference information downloaded from the NLM's public domain sources, and a associated section to enter personal notes on the various topics. (4) Our hospital's physician directory with specialty, addresses, phone numbers and beepers, which is obtained from the medical staff office. (5) Antibiotic choices for various pathogens using data compiled from recent publications. Information is retrievable in the flexible, task-oriented manner which physicians practice.

DISCUSSION

The palmtop can help manage and access information needed in a busy clinical practice. The portability allows it to be used at the point of care, when information is most useful. Palmtops can be available even when the point of care varies widely from hospital to office to the patient's home.

Using existing database software, such as Clipper, clinicians can create their own clinical databases and diagnostic aids on the palmtop. The usefulness of these can be dramatically enhanced by integrating them with medical record summaries from ones' own practice. Palmtop technologies on the horizon can make these clinical tools even more valuable. Beepers, cellular phones, modems and wireless connections to networks will soon be available on the palmtop. Ease of use will improve with graphical interfaces using pen and voice entry.

REFERENCES

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0195-4210/92/$5.00